PACIFIC METEOROLOGICAL COUNCIL

ENSO update

Alexandre Peltier – New Caledonia

World Meteorological Organisation

SPREP Secretariat of the Pacific Regional Environment Programme

Pacific Community Communauté du Pacifique

CSIRO

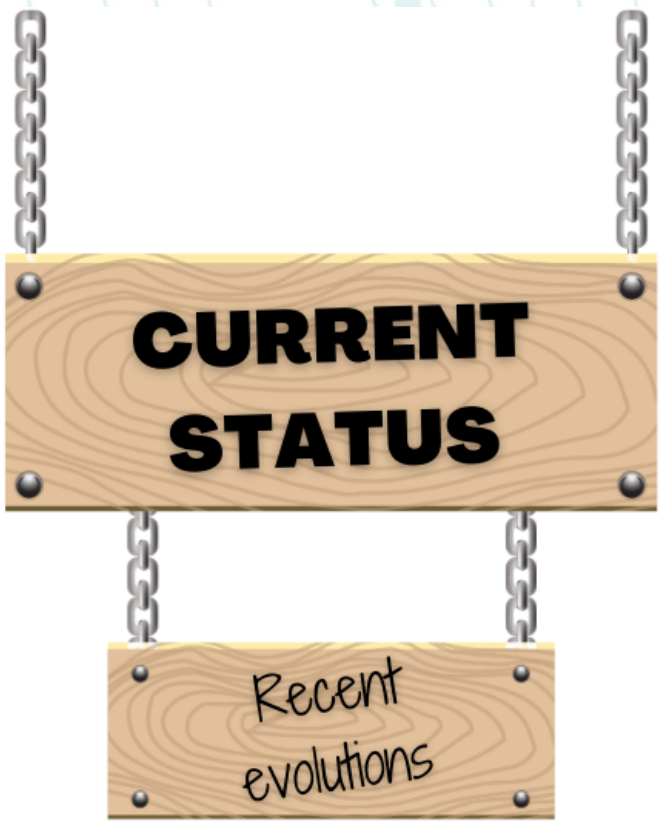
BOM

APCC APEC CLIMATE CENTER

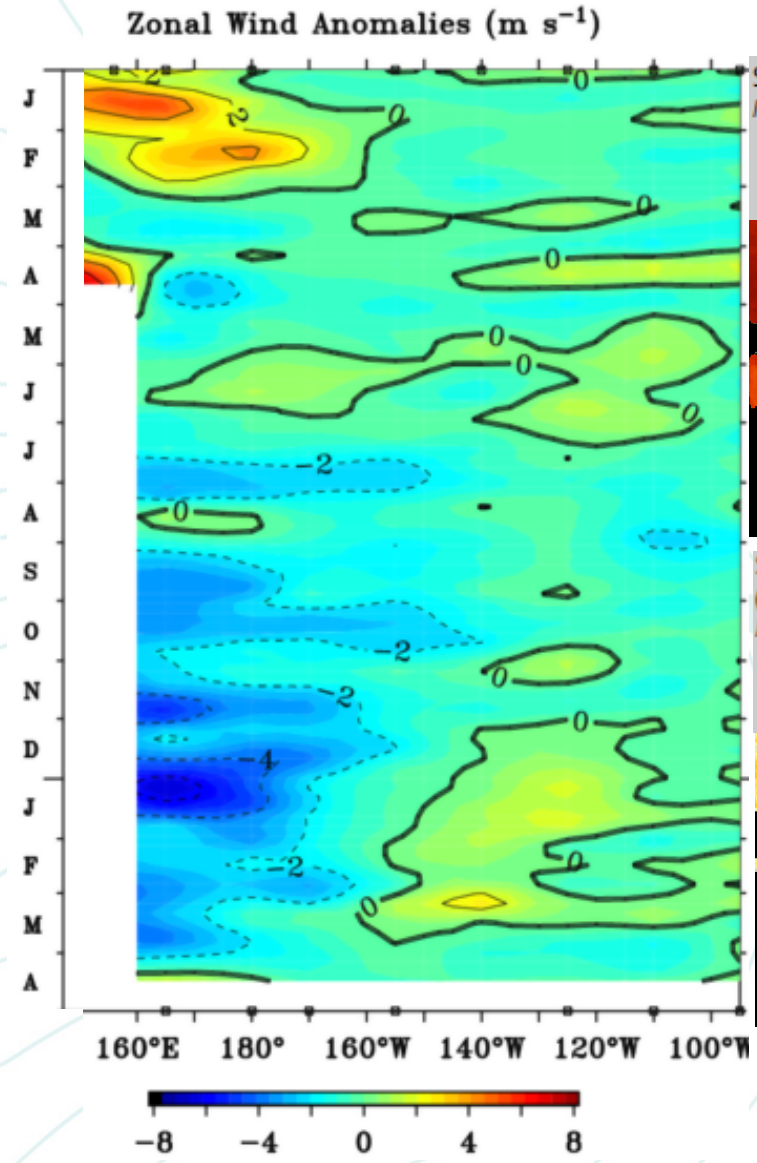
METEO FRANCE

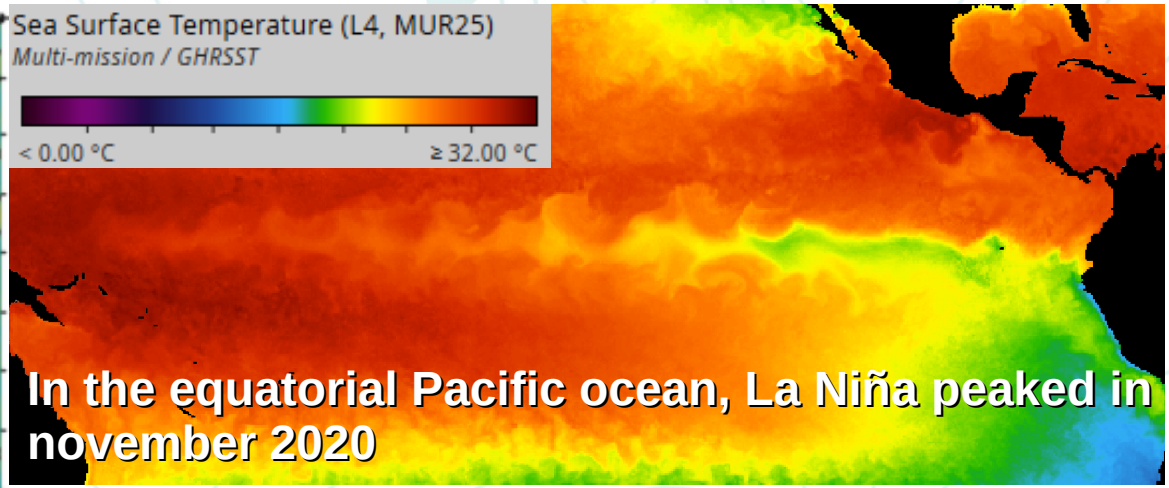
NIWA Taihoro Nukurangi

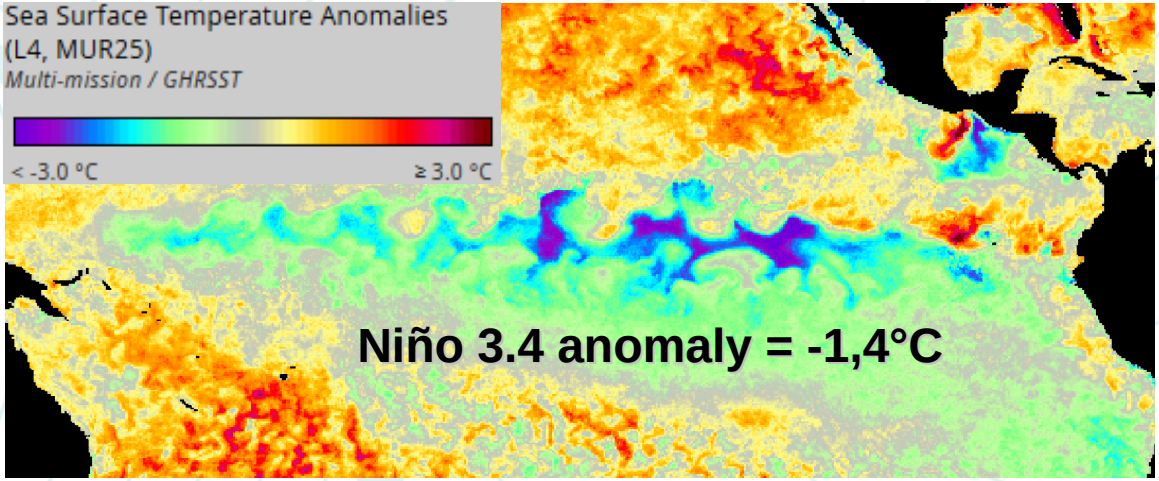
NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce


CURRENT
STATUS
Recent
evolutions

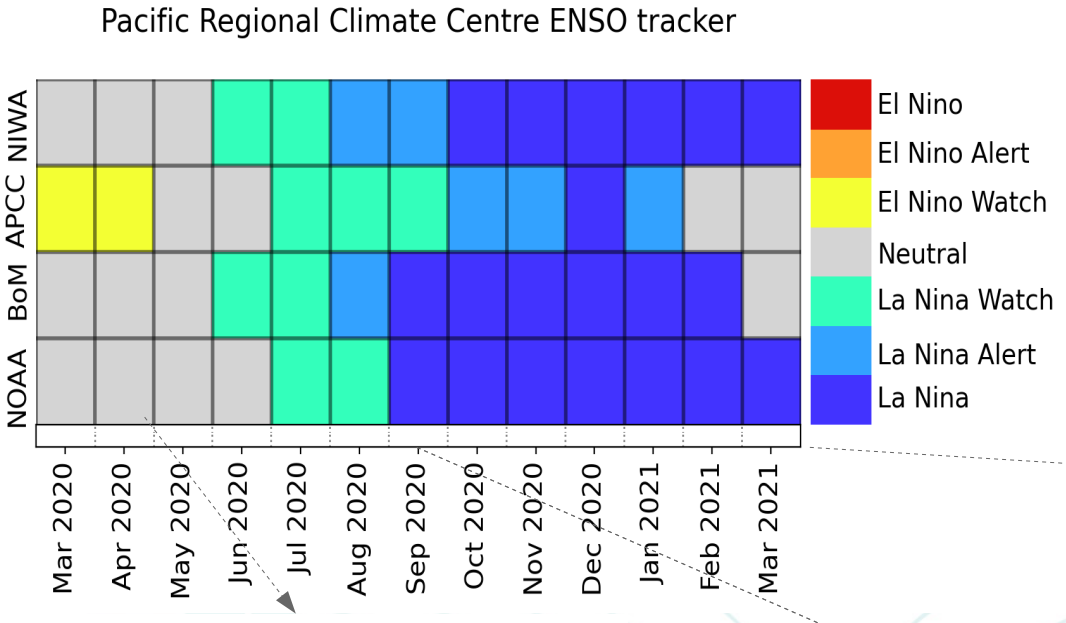
Sea Surface Conditions



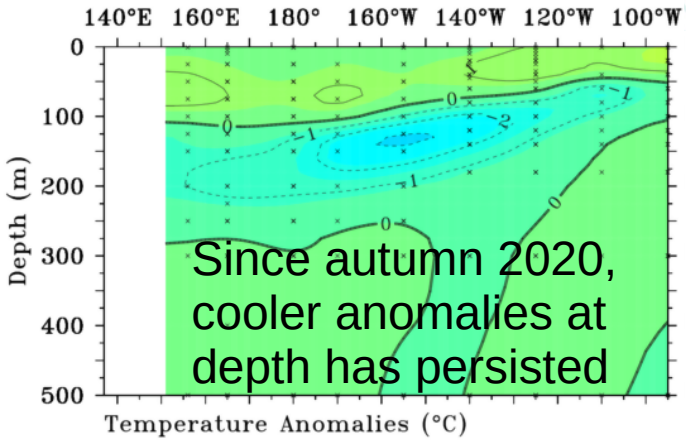




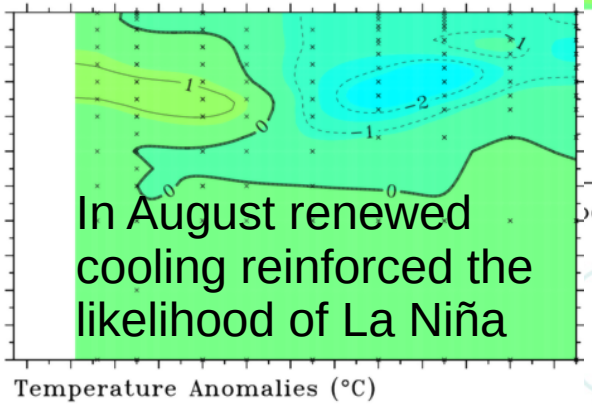
Subsurface temperatures



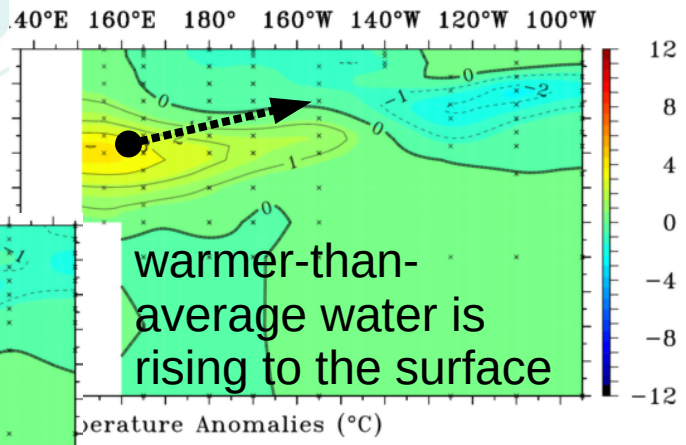
April 2020



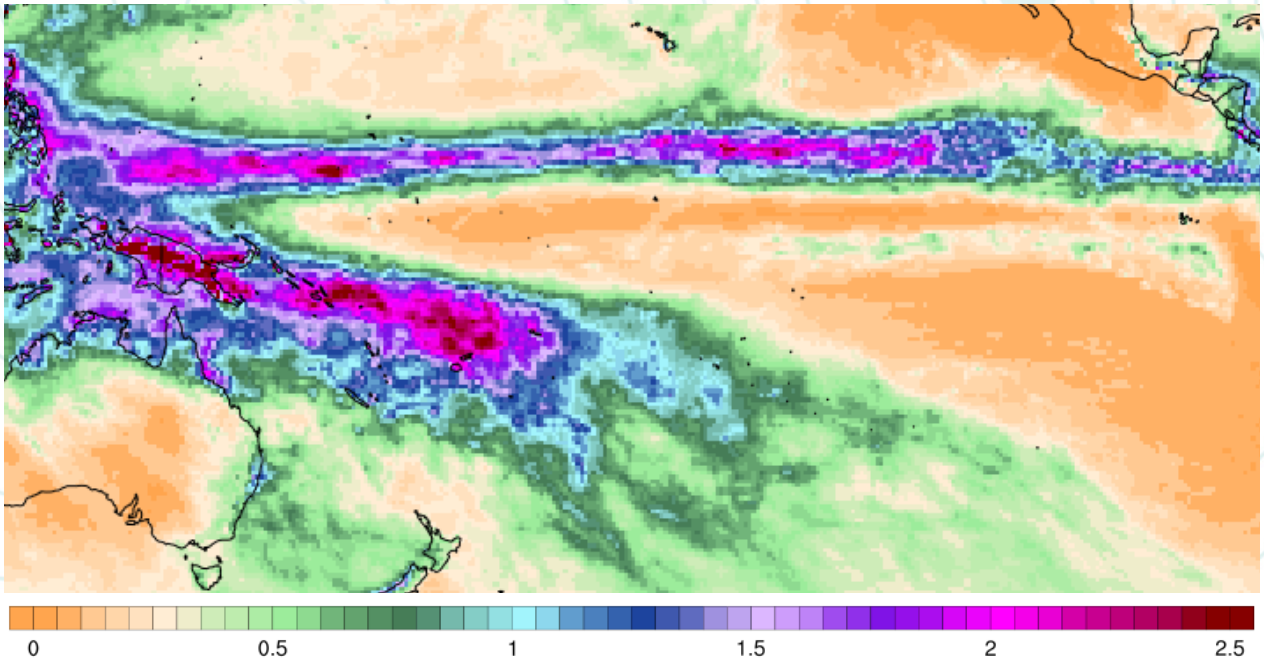
September 2020



March 2021

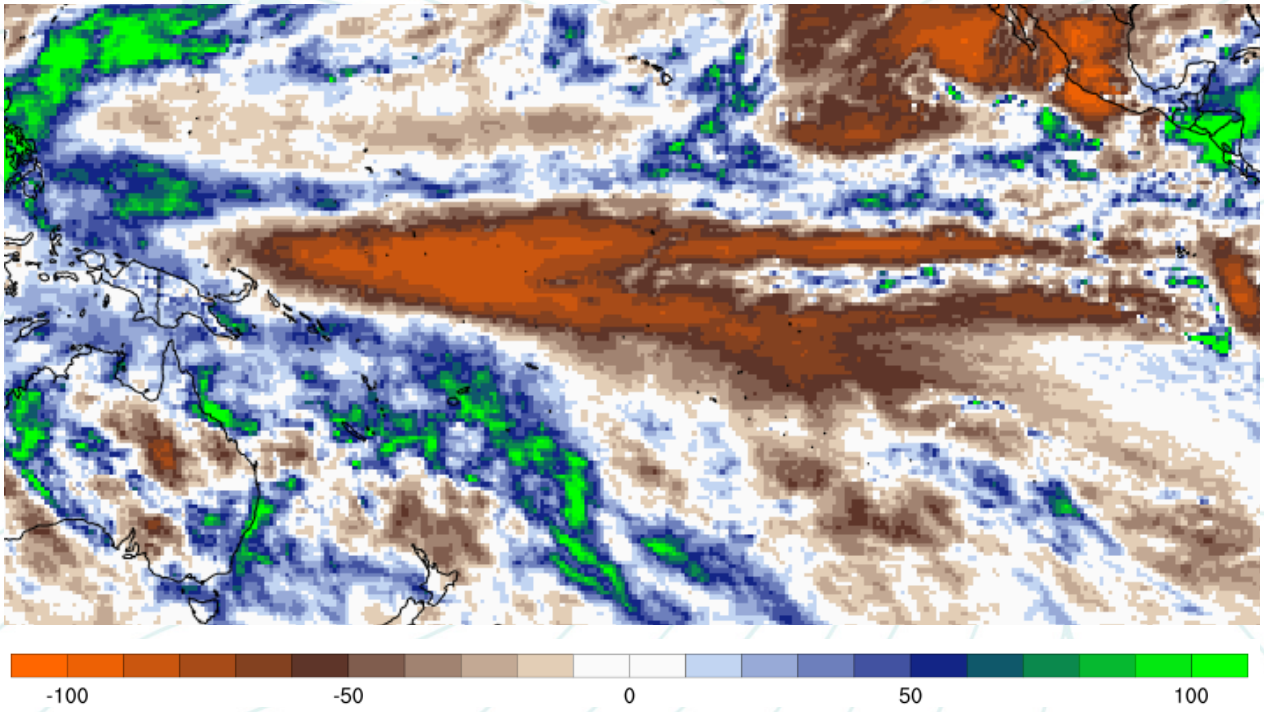


Recent evolution : a downwelling Kelvin wave is moving from the west to the east under the surface.



Acc. Precipitation (m)
NDJFM 2021

ECMWF ERA-5



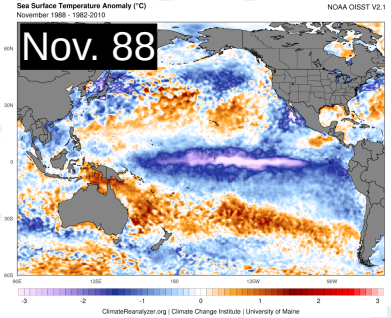
Acc. Precipitation Anomaly (%)
NDJFM 2021 – 1981-2010

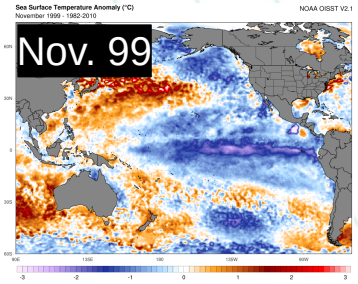
ECMWF ERA-5

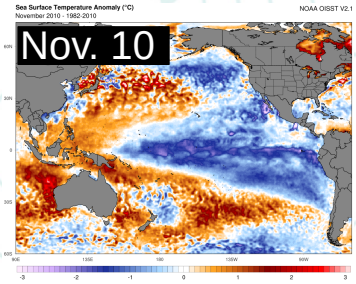
Images from Climate Reanalyzer (https://ClimateReanalyzer.org), Climate Change Institute, University of Maine, USA.

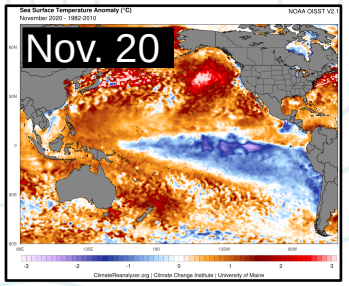

PAST
EPISODES

La Niña Comparisons

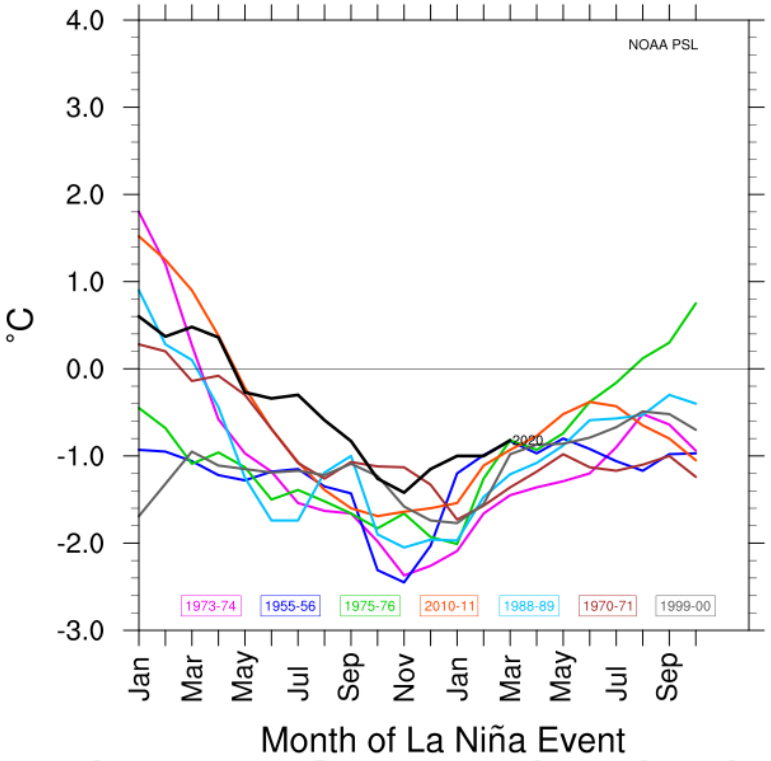




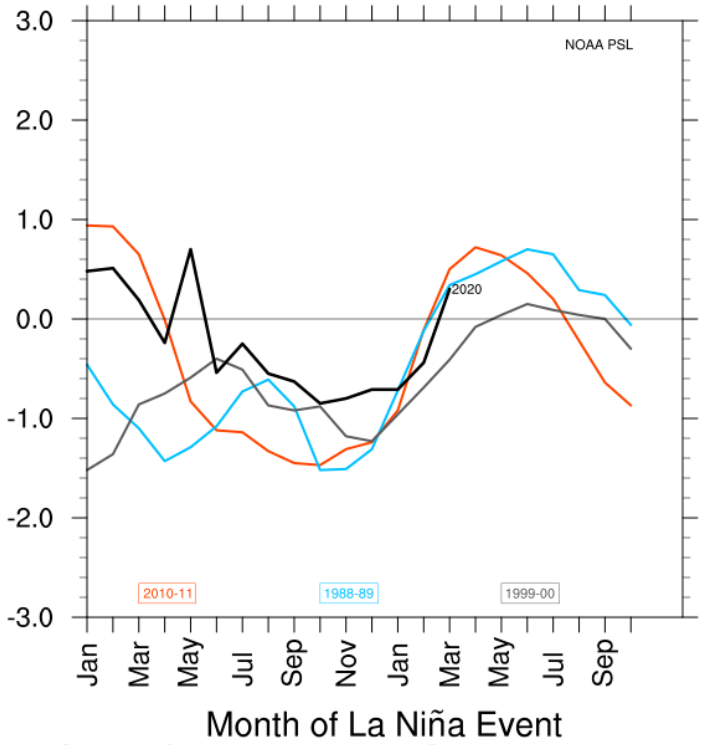




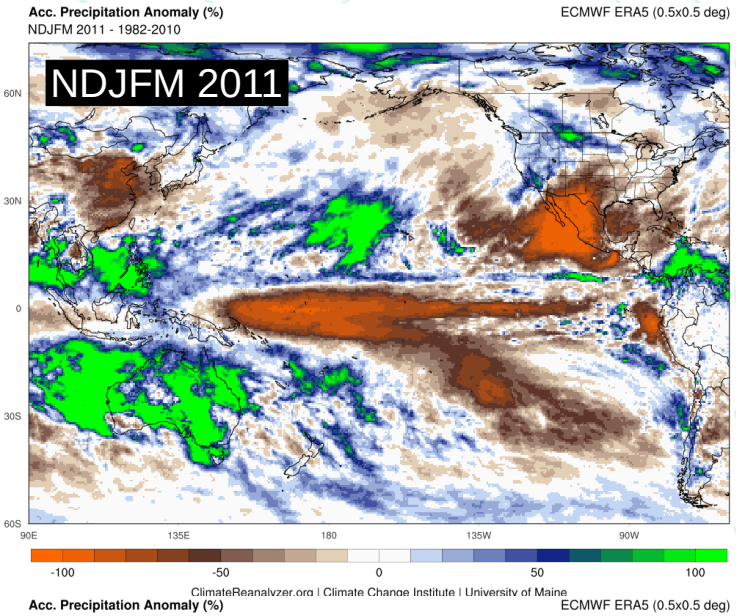
Niño 3.4 for the top 7 La Niña events since 1950 vs. 2020- values

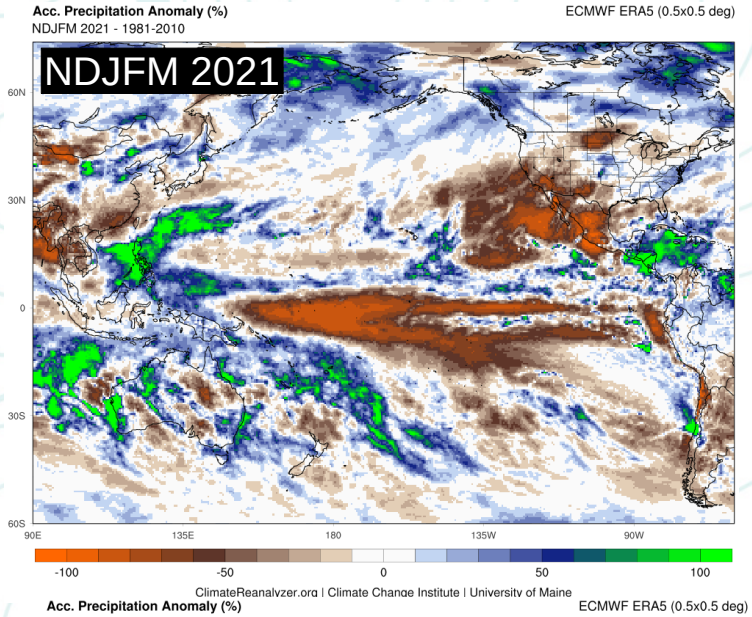


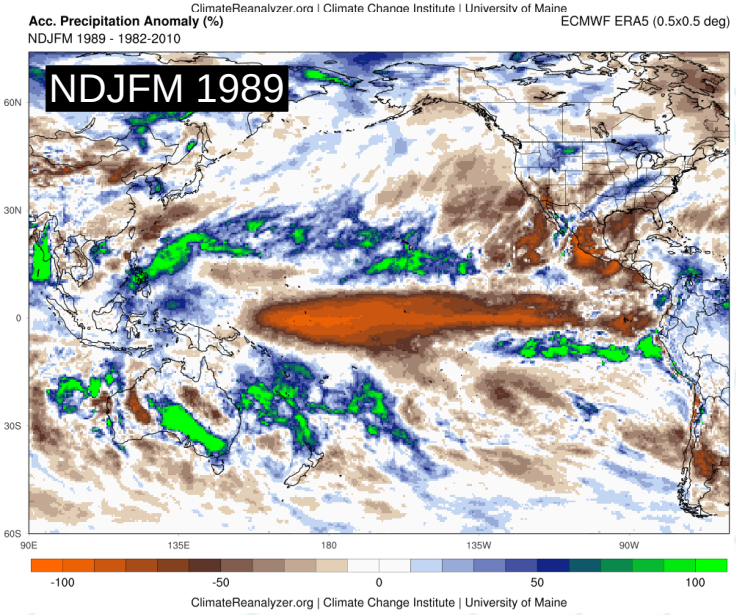
Equatorial Upper 300m T 160E-80W for the top 3 La Niña events since 197? vs. 2020- values

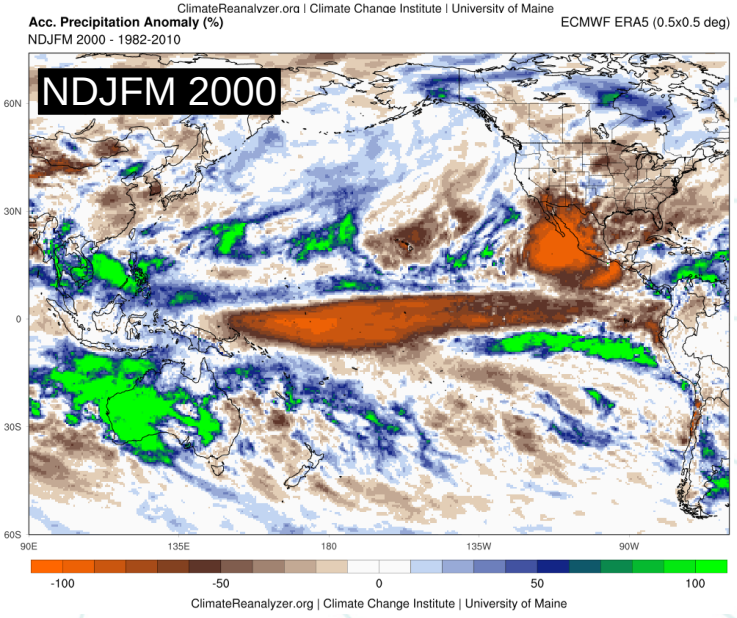


Rainfall anomalies



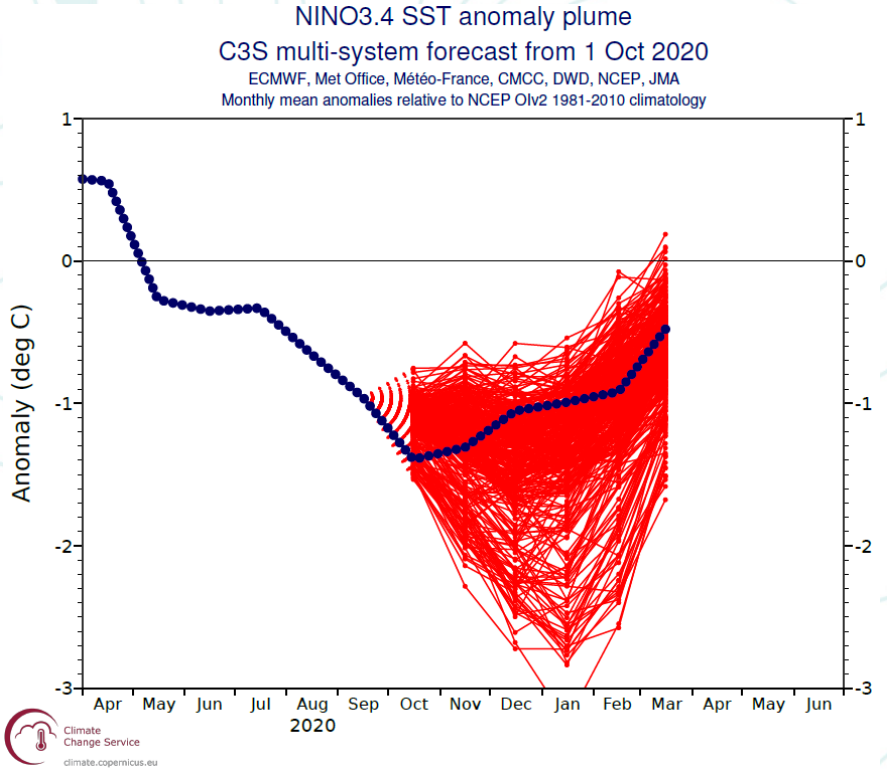


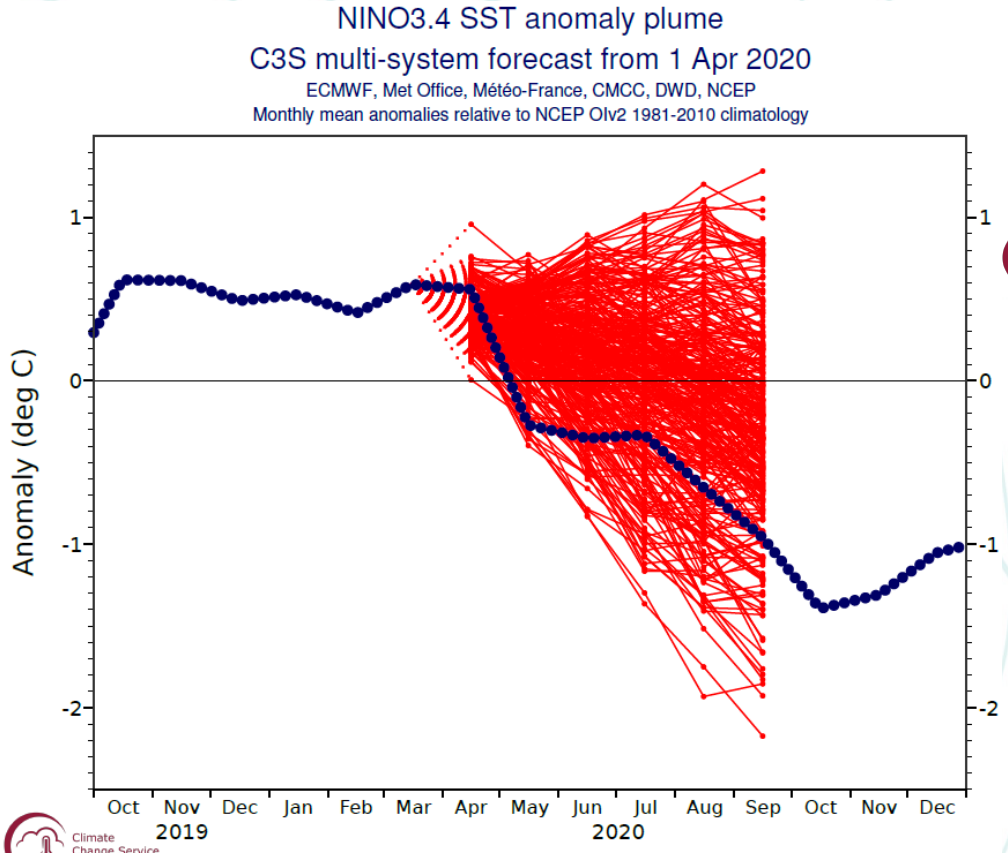




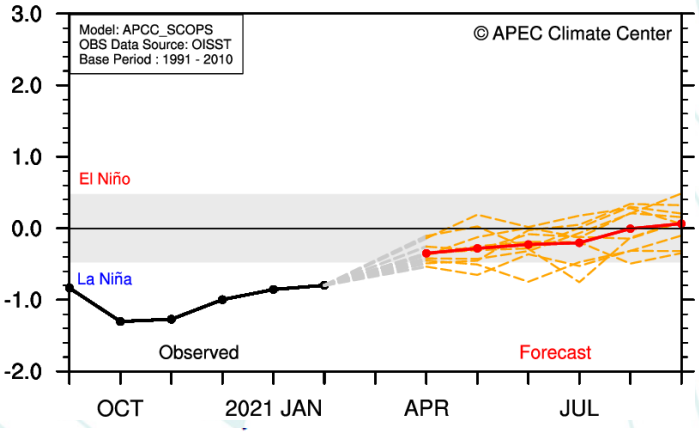
Multi-system combination SST-index forecasts

<u>21 April, 2020 :</u>
PICOF-6 "emphasised that the ENSO forecast beyond May should be used with caution although most models are favouring ENSO ***neutral conditions****"*



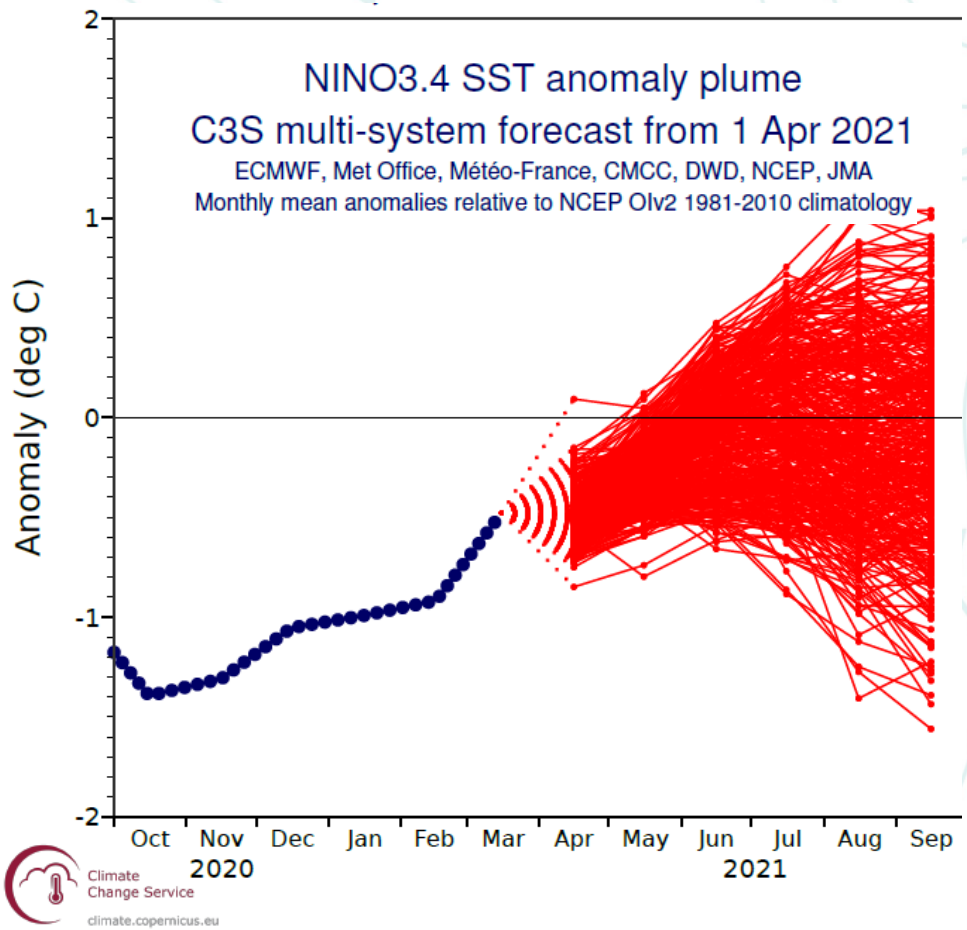


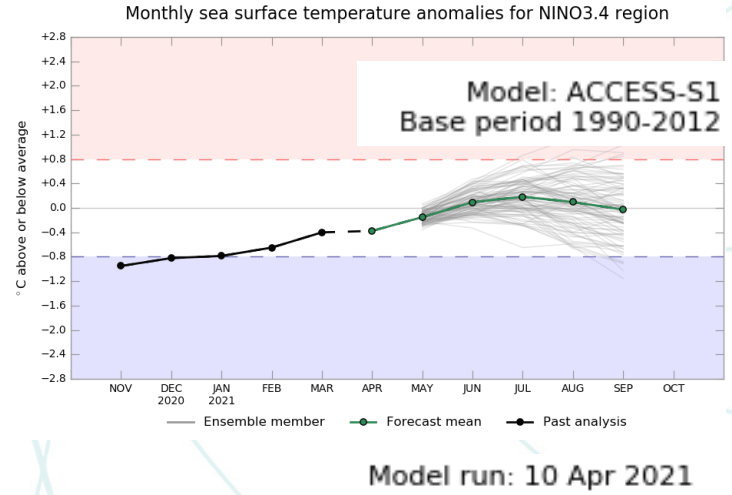
<u>23 October, 2020 :</u>
PICOF-7 "noted the likely building of La Niña until December/January (ACCESS-S forecast) where it may reach ***moderate to strong*** *La Niña event and continuation until at least early 2021"*



Probabilities for NINO3.4 percentile categories - Sep 2021

	<P25	P25-P75	>P75
NCEP	35	65	0
MF	45	55	0
UK	5	85	10
JMA	20	80	0
ECMWF	10	90	0
DWD	20	80	0
CMCC	0	75	25
BOM	5	90	5
APCC	0	100	0





Model run: 10 Apr 2021

- The development of a typical El Niño
  - precursor : prior to austral autumn, a charged western tropical pacific heat content is necessary
  - trigger : Westerly Wind Events (WWE) activity in autumn and early winter is a key trigger mechanism (not predictable beyond 10 days)
- Historically :
  - Most El Niño events last a few seasons and then quickly transition into La Niña. In contrast, one out of two observed La Niña events last 2 years or longer
  - very few La Niña events transition directly into El Niño. Instead, most La Niña events slowly decay, taking several years of near-neutral conditions until the next El Niño event is triggered

La Niña